

Benchmarking And Optimization Of The North Carolina Ferry Services



Summary Report

Joint Transportation Legislative Oversight Committee

March 17, 2010

Jeff Tsai, Program Director
Institute for Transportation Research and Education
North Carolina State University



NC STATE UNIVERSITY

North Carolina Ferry System Study Scope

2

- Current state of the NC Ferry System
 - Current operations
 - Survey of ferry users
 - Economic dimensions of the ferry operations
- Peer review
- Current Challenges
- Options to Address Challenges



v: annual vehicle count
p: annual passenger count
t.r.: percent tourism/recreation user
toll: Pedestrian, Bicycle, Motorcycle
Vehicle <20', 20'~40'. 40'~65'

Currituck-Knots Is.
5 m./45 min.
1 vessel, 12 sailings
v:29,490, p:89,438, t.r.:57%
Free

Swan Quarter-Ocracoke
30 miles/2.5 hrs.
2 vessels/8 sailings
v:27,431, p:64,634, t.r.:81%
p:\$1,b:\$3,m:\$10,v:\$15/20/45

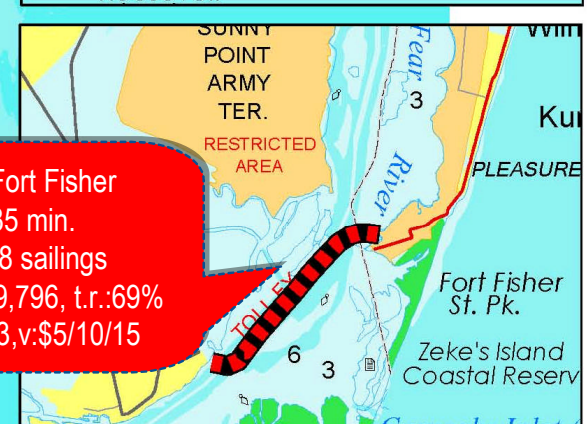
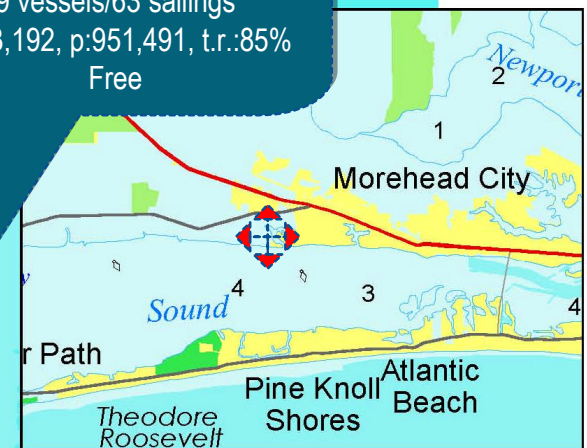
Hatteras Is.-Ocracoke
4.5 miles/45 min.
9 vessels/63 sailings
v:353,192, p:951,491, t.r.:85%
Free

Bayview -Aurora
3.5 miles/30 min.
1 vessel/22 sailings
v:81,572, p:129,564, t.r.:33%
Free

Cedar Is.-Ocracoke
26 miles/2.25 hrs.
3 vessels/12 sailings
v:75,783, p:183,583, t.r.:80%
p:\$1,b:\$3,m:\$10,v:\$15/20/45

Cherry Branch-Minnesott Beach
2 miles/20min.
3 vessels/56 sailings
v:277,254, p:486,782, t.r.:23%
Free

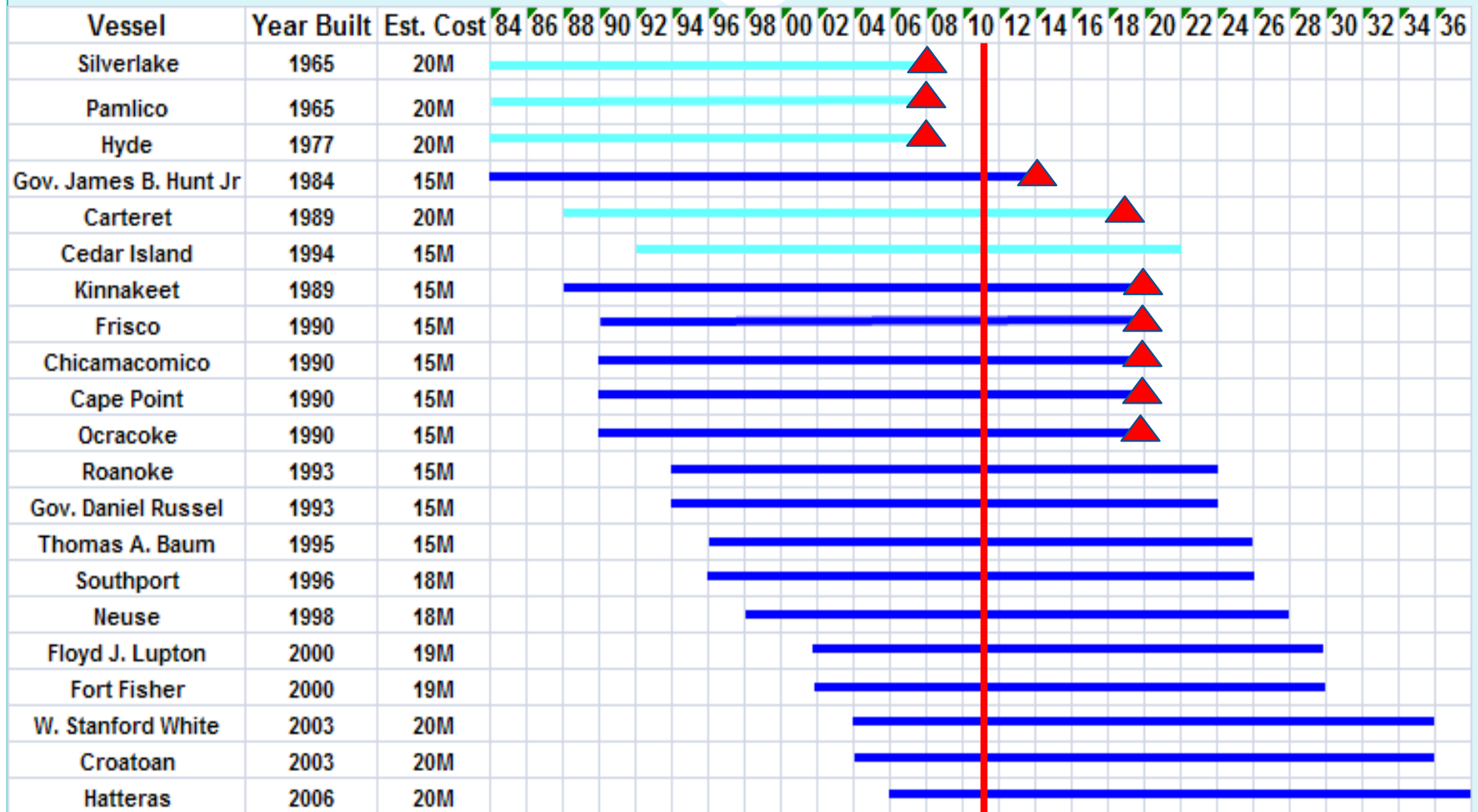
Southport -Fort Fisher
4 miles/35 min.
2 vessels/28 sailings
v:185,447, p:499,796, t.r.:69%
p:\$1,b:\$2,m:\$3,v:\$5/10/15



- ▲ Year vessel to be replaced
- Vessel serves sound crossing routes
- Vessel serves river/inlet crossing routes

North Carolina Ferry System 30 Year Vessel Replacement

4



North Carolina Ferry System Operating Cost and Personnel

5

Annual expenditures:

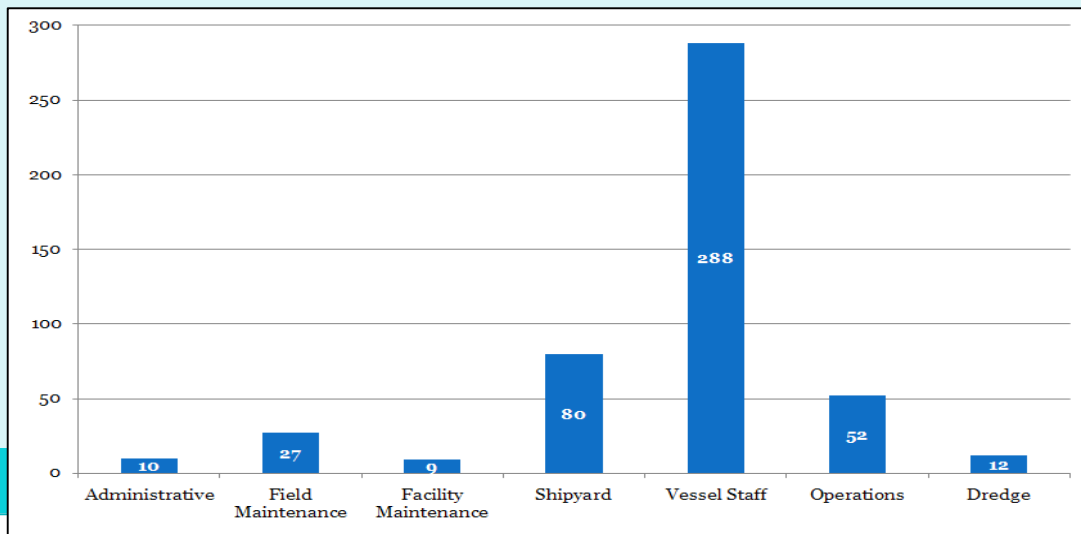
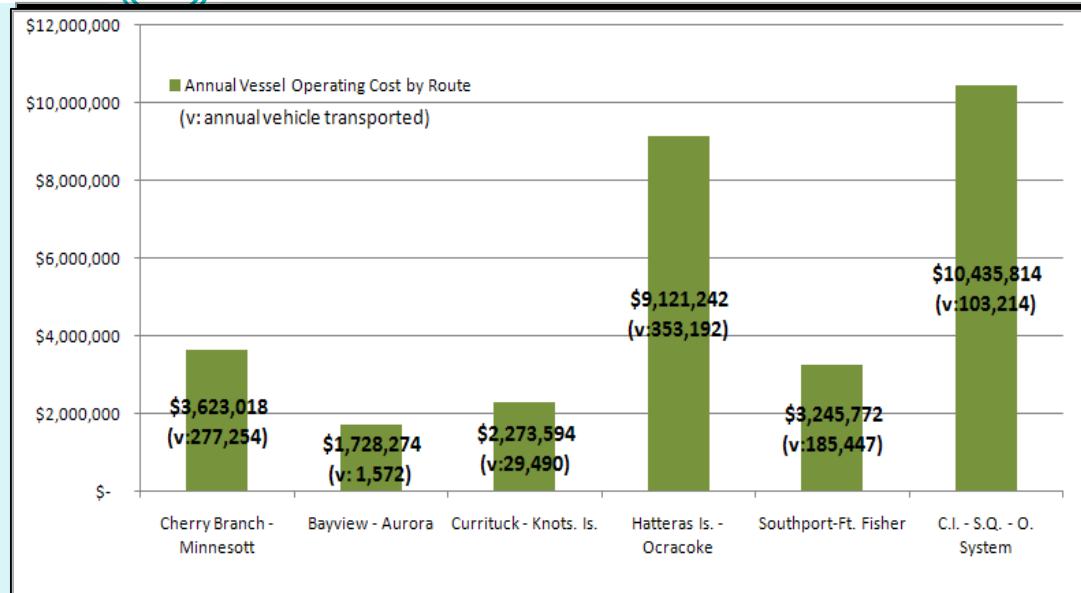
- Vessel operation = \$33 million
- Ancillary cost = \$7 million

Tolling:

- Fort Fisher - \$800,000 (17% return)
- Cedar Island/Swan Quarter –
Ocracoke - \$1.4 million (14% return)
- System toll return = 5.6%

Ferry Division Personnel = 478

- Vessel crew, 60%
- Shipyard, 17%
- Operations, 11%
- Maintenance, 7.5%
- Dredge, 2.5%
- Administration, 2%



North Carolina Ferry System

Passenger Surveys

(2081 collected from all 7 routes in July 2009)

6

Level of Service

- 72% surveyed extremely satisfied with their experience using the ferry
- Boarding their intended departure (not having to wait for a subsequent sailing) is the greatest concern on the majority of routes
- Cherry Branch – Minnesott Beach users were divided in their satisfaction with the number of scheduled trips
- Hatteras – Ocracoke users' primary concern was the length of wait time to board

Travel saving in cost

- 70% estimated saving more than \$5 per one-way trip
- 40% estimated saving more than \$10 per one-way trip

Travel saving in time

- 40% estimated time saving more than one hour per one-way trip
- 20% estimated time saving more than two hours per one-way trip

Willingness-to-Pay

- Greatest percentage at the Hatteras–Ocracoke route (63%)
- Lowest at the Cherry Branch–Minnesott Beach route (45%)

North Carolina Ferry System Economic Dimensions

7

- The impact of the tourists utilizing the ferry division is estimated at \$325 million
 - The 9 counties that the ferries operate in experienced a significant impact from tourism spending: \$2.2 billion (13% of statewide tourism expenditures)
 - Approximately 1 million vehicles travel by ferry each year (FY2007-2008)
- Employment access
 - Ferry operations support employment of over 3,600 jobs
- Annual travel time benefit: \$6 to \$12 million



North Carolina Ferry System Peer Reviews

8

Peer Reviews

- Second largest state-operated ferry system in the nation—transports more than 1.1 million vehicles and 2.5 million passengers annually
- Service area is 30% larger than the Washington State Ferry System (WSFS), the largest system in the nation
- NCFS toll rates, on a per-mile basis, are lower than comparable routes.
- System toll-return rate is 5.6%. WSFS recovers 70% of their cost through tolling and wants to recover 90%, as part of vessel replacement program. National average for transit is 25%
- The shipyard in Manns Harbor is the largest state-operated shipyard in the U.S.

North Carolina Ferry System Project Summary

9

Overall Findings

- Majority of the ferry users are extremely satisfied with their experience
- Daily ferry schedules are optimized using minimal number of vessels and crew while meeting local demands and USCG regulations
- Seasonal ferry schedule transition (peak/off-peak) aligns with historical Memorial Day and Labor Day tourist demands
- Shipyard capabilities are without peer

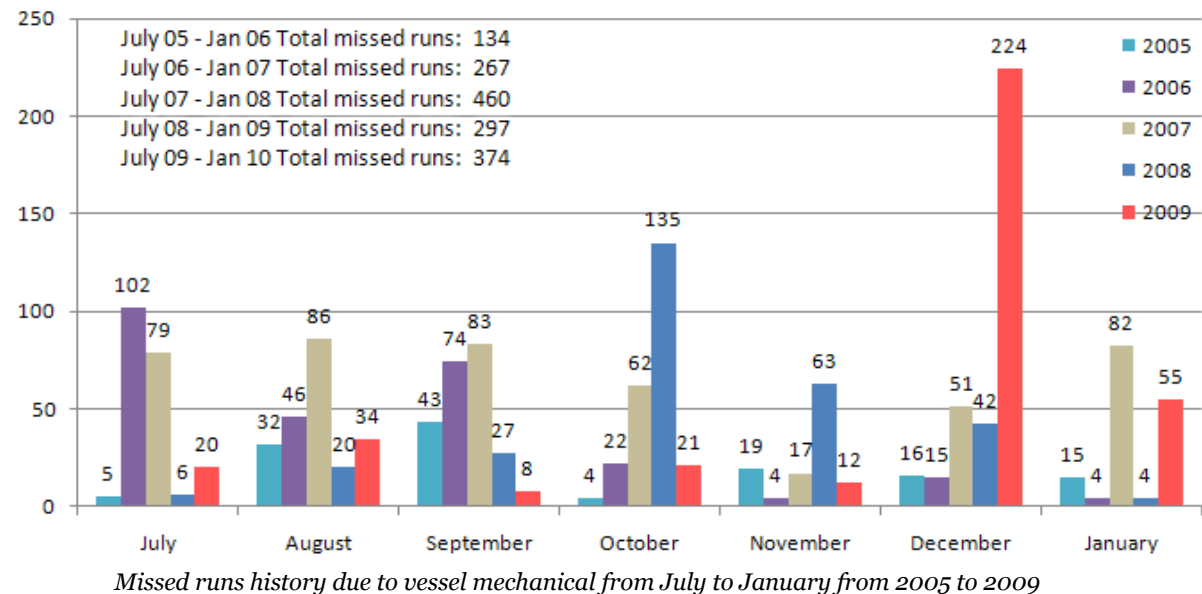


North Carolina Ferry System Project Summary

10

Current Challenges

- Aging fleet and vessel replacement need
- Meeting USCG vessel inspection requirements and frequency
- Impacts to shipyard and maintenance facilities
 - ✦ Level of Service impacts
 - ✦ Resource impacts (labor, cost, and space)



North Carolina Ferry System Options to Address Challenges

11

Status-Quo

- Deteriorating vessel condition, missed runs, impacts to Level of Service
- Failed USCG inspections = vessel out of service

Develop Vessel Replacement Program

- Seek extra resource allocations from General Assembly
- Unlikely due to state budget

North Carolina Ferry System Options to Address Challenges

12

Explore Expanded Tolling

- Use tolls to create Capital Replacement fund
- Options to address commuter impacts:
 - ✦ Employer tax deductions for transit
 - ✦ Expand County transit service

	Current	\$100/month
Cherry Branch – Minnesott Beach	\$0	\$10
Bayview – Aurora	\$0	\$10
Currituck – Knotts Island	\$0	\$10
Hatteras – Ocracoke	\$0	\$10
Southport – Ft Fisher	\$5	\$10
Cedar Island – Ocracoke	\$15	\$30
Swan Quarter – Ocracoke	\$15	\$30
Total Revenue:	\$2.2 M	\$10.4 M

▪ *\$100/month commuter pass= \$5/day
= \$2.5/trip*

▪ *Commuter pass holders receive 100% fare discount*

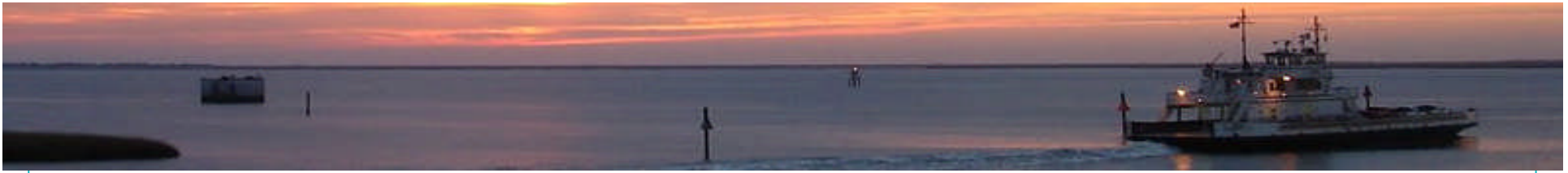
▪ *\$10 million in toll revenue equates to approximately 25% of the system cost*

North Carolina Ferry System Options to Address Challenges

13

Explore use of Private Sector to Help

- North Carolina shipbuilding industry
 - ✦ Supplement ferry system maintenance/inspection needs
 - ✦ Vessel replacement construction
- Commercial vessel construction industry



Benchmarking And Optimization Of The North Carolina Ferry Services

Questions?

Joint Transportation Legislative Oversight Committee
March 17, 2010

Jeff Tsai, Program Director
Institute for Transportation Research and Education
North Carolina State University



NC STATE UNIVERSITY